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22 December 2003 (22.12.2003) IT(71) Applicant (for all designated States except US): CON-
SIGLIO NAZIONALE DELLE RICERCHE - INFN
ISTITUTO NAZIONALE PER LA FISICA DELLA
MATERIA [IT/IT]; Corso F. Perrone, 24, I-16152 Genova
(IT).

(72) Inventors; and

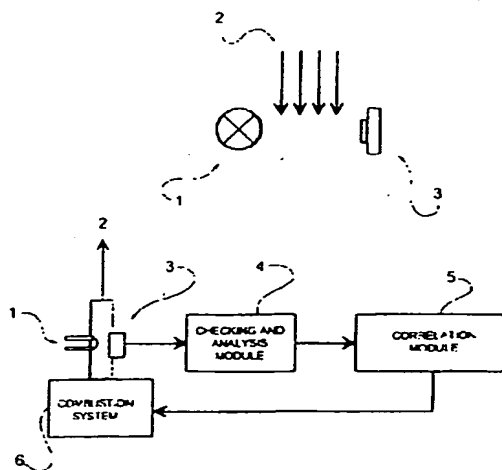
(75) Inventors/Applicants (for US only): LA FORGIA,
Domenico [IT/IT]; Via Nicolai, 20, I-70122 Bari (IT).
DE RISI, Arturo, Antonio [IT/IT]; P.ta Toscanini, 1,
I-73100 Lecce (IT). DE VITTORIO, Massimo [IT/IT];
Corte dei Giugni, 12, I-73100 Lecce (IT). CINGOLANI,
Roberto [IT/IT]; Via E. Indraccolo, 20, I-73100 Lecce
(IT). PASSASEO, Adriana [IT/IT]; Via Vecchia San
Cesario, 3, I-73040 Lecce (IT). LOMASCOLO, Mauro
[IT/IT]; Piazza L. Ariosto, 21, I-73100 Lecce (IT).(74) Agents: DEAMBROGI, Edgardo et al.; Jacobacci &
Partners SpA, Corso Emilia 8, I-10152 Torino (IT).(81) Designated States (unless otherwise indicated, for every
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(54) Title: AN OPTICAL SYSTEM FOR DETECTING THE CONCENTRATION OF COMBUSTION PRODUCTS

(57) Abstract: Optical system for detecting the concentration of com-
bustion products operating in situ and at high temperature based on
measurement of the optical absorption of a gaseous mixture of com-
bustion products through a photodetecting sensor based on gallium ni-
tride (GaN), aluminium nitride (AlN), indium nitride (InN) and corre-
sponding alloys. The operating temperature of the sensor preferably
lies between 500 °C and 700 °C, but the resistance of the active mate-
rial permits use at even higher temperatures. This system can be used
to measure the concentration of chemical species present in combustion
products directly at their outlet, where the high operating temperature
makes it possible to avoid fouling of the sensor caused by carbonaceous
and non-carbonaceous deposits. The rate of response of the system is
less than or equal to 1 millisecond and makes it possible to adjust the
parameters of an associated combustion process control system in real
time.

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